10 - CHAPTER 7 REVIEW NAME: _____ EX: 7.1

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The perimeter of a rectangle is 96 cm. The length of the rectangle is 10 cm more than the width.

a) Create a linear system to model this situation.

Let L = Length (cm)
W = width

$2L + 2W = 96$
$L = W + 10$

b) The sides of the rectangle are measured to be 29 cm long and 19 cm wide. Use your linear system from a) to verify that these dimensions are correct.

$2(29) + 2(19)$
$= 58 + 38$
$= 96$

LS: 29
RS: $19 + 10 = 29$
LS = RS

Adult tickets for the school play are \$12.00 and children's are \$8.00. For a sold out performance, 300 tickets are sold and raise \$3280.00.

a) Create a linear system to model this situation.

Let a be # of adult tickets
C # of children's tickets

$a + C = 300$
$12a + 8C = 3280$

b) For this sold out performance, 220 adults and 80 children attend. Use your linear system from a) to verify that these numbers are correct.

LS: $220 + 80$
300 ✓

RS: 300

LS: $12(220) + 8(80)$
$= 2640 + 640$
$= 3280$

RS: 3280 ✓

10 - CHAPTER 7 REVIEW NAME: _____ EX: 7.2

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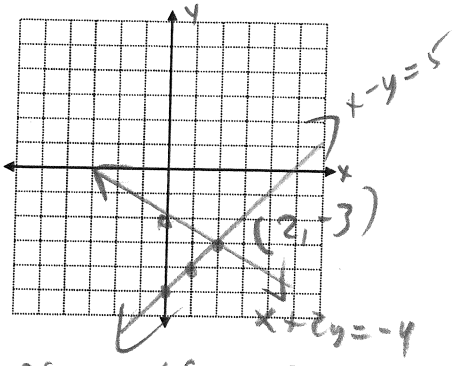
Solve each linear system by graphing. Check your solution by substituting into each linear system of equations to verify.

a) $x+2y=-4 \rightarrow 2y=-x-4 \rightarrow y=-\frac{1}{2}x-2$

$x-y=5 \rightarrow y=x-5$



Verify: RS LS RS LS

$2+2(-3)$ -4 $2+3$ 5

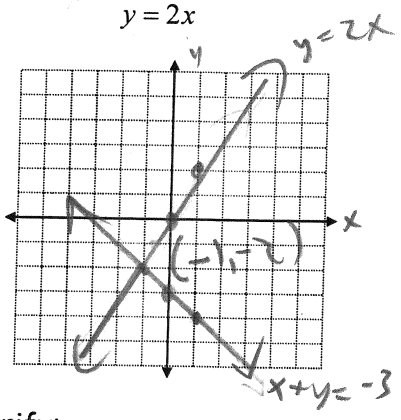
$2-6$

-4 ✓ 5 ✓

$(2,-3)$

b) $x+y=-3 \rightarrow y=-x-3$

$y=2x$



Verify:

$(-1,-2)$

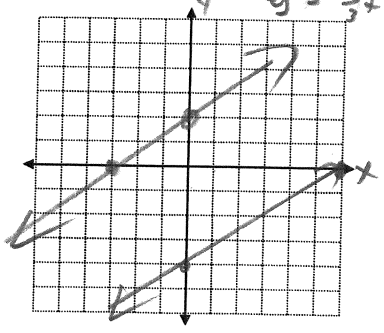
7.2 AND 7.6 (p. 444)

Solve each linear system by graphing. Explain your result for each graph.

a) $-2x+3y=6 \rightarrow 3y=2x+6 \rightarrow y=\frac{2}{3}x+2$

$2x-3y=12 \rightarrow -3y=-2x+12$

$y=\frac{2}{3}x-4$

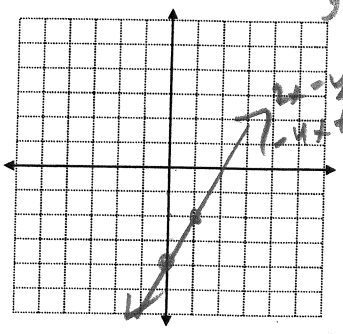


Explanation: No solution. Lines are parallel. (both have slope $\frac{2}{3}$)

b) $2x-y=4 \rightarrow y=2x-4$

$-4x+2y=-8 \rightarrow 2y=4x-8$

$y=2x-4$



Explanation: infinite solutions - every point of each line intersects. (coincident lines)

10 - CHAPTER 7 REVIEW NAME: _____ EX: 7.4

This review package can be completed as we work through the chapter or at the latest the night before the review class for the chapter test. Use it as an on-going review or as a study booklet right before the test. The answers will be posted during the review class before the chapter test.

Use substitution to solve each linear system.

a) ① $2x + y = 4$ ② $3x + 4y = 1$

① $y = -2x + 4$

② $3x + 4(-2x+4) = 1$

$3x - 8x + 16 = 1$

$-5x = -15$

$x = 3$

① $2(3) + y = 4$ $(3, -2)$

$6 + y = 4$

$y = -2$

b) ① $2x - 4y = 7$ ② $-x + 8y = -5$

① $8y + 5 = x$

① $2(8y+5) - 4y = 7$

$16y + 10 - 4y = 7$

$12y = -3$

$y = \frac{-3}{12} = -\frac{1}{4}$

② $2x - 4(-\frac{1}{4}) = 7$

$2x + 1 = 7$

$2x = 6$

$x = 3$ $(3, -\frac{1}{4})$

The cafeteria has a special of one hamburger and one order of fries for \$5.49 or one hamburger and two orders of fries for \$6.99. Set up a system of equations. Solve it to find the individual price of the hamburger and the fries.

Let h = # hamburgers

F = # fries

① $H + F = 5.49 \rightarrow$ ① $H = 5.49 - F$

② $H + 2F = 6.99$

② $5.49 - F + 2F = 6.99$

$F = 1.50$

① $H + 1.50 = 5.49$

$H = 3.99$

Fries \$1.50, Hamburger \$3.99

LS: ① $3.99 + 1.50 = 5.49$ ✓

② $3.99 + 2(1.50) = 3.99 + 3 = 6.99$ ✓

RS: 5.49, 6.99

Jamal has 80 coins, consisting of dimes and quarters. The total value of his coins is \$15.20. Set up a system of equations. Solve it to find the number of dimes and quarters.

Let D = # dimes

Q = # quarters

① $D + Q = 80 \rightarrow$ ① $D = 80 - Q$

② $0.10D + 0.25Q = 15.20$

① $0.10(80 - Q) + 0.25Q = 15.20$

$8 - 0.10Q + 0.25Q = 15.20$

$8 + 0.15Q = 15.20$

$0.15Q = 7.20$

$Q = 48$

① $D + 48 = 80$

$D = 32$

32 dimes, 48 quarters

① $48 + 32 = 80$ ✓

② $0.10(32) + 0.25(48) = 3.20 + 12 = 15.20$ ✓

10 - CHAPTER 7 REVIEW NAME: _____ EX: 7.5

This review package can be completed as we work through the chapter or at the latest the night before the review class for the chapter test. Use it as an on-going review or as a study booklet right before the test. The answers will be posted during the review class before the chapter test.

Use elimination to solve each linear system.

a) ① $x+y=6$ ② $x-y=4$

$2x=10$

$x=5$

① $5+y=6$

$y=1$

$(5,1)$

b) ① $x-y=-4$ ② $x+2y=5$

$\times 2$ ① $2x-2y=-8$

② $x+2y=5$

$3x=-3$

$x=-1$

① $-1-y=-4$

$-y=-3$

$y=3$

$(-1,3)$

c) ① $2x-3y=2$ ② $x+2y=8$

① $2x-3y=2$

$\times -2$ ② $-2x-4y=-16$

$-7y=-14$

$y=2$

d) ① $4x+3y=5$ ② $3x-2y=8$

$\times 2$ ① $8x+6y=10$

$\times 3$ ② $9x-6y=24$

$17x=34$

$x=2$

② $3(2)-2y=8$

$-2y=6$

$y=-3$

7.5 AND 7.6

Use elimination to solve each linear system. Explain your results.

a) ① $3x-2y=1$ ② $-6x+4y=3$

$\times 2$ ① $6x-4y=2$

② $-6x+4y=?$

$0=3?$

No solution

b) ① $2x+5y=2$ ② $-4x-10y=-4$

$\times 2$ ① $4x+10y=4$

② $-4x-10y=-4$

$0=-2?$

no solution

same slopes different y-intercepts

Explanation:

① $-2y=-3x+1$

$y=\frac{3}{2}x-2$

② $4y=6x+3$

$y=\frac{6}{4}x+\frac{3}{4}$

$y=\frac{3}{2}x+\frac{3}{4}$

The slopes are the same - they are parallel. They don't cross. No intersection point.

Explanation:

① $5y=-2x+2$

$y=\frac{2}{5}x+\frac{2}{5}$ $m=\frac{-2}{5}$ $b=\frac{2}{5}$

② $-10y=4x-4$

$y=-\frac{4}{10}x+\frac{4}{10}$

$y=-\frac{2}{5}x+\frac{2}{5}$

Same explanation as (a) They are parallel (same slope) ∴ no intersection pt.

$m=-\frac{2}{5}$ $b=\frac{2}{5}$

$m=\frac{3}{2}$ $b=-2$

$m=\frac{3}{2}$ $b=\frac{3}{4}$

10 - CHAPTER 7 REVIEW NAME: _____ EX: 7.6

This review package can be completed as we work through the chapter or at the latest the night before the review class for the chapter test. Use it as an on-going review or as a study booklet right before the test. The answers will be posted during the review class before the chapter test.

In the given systems of equations, rewrite each equation in slope-intercept form. State the value of the slope and the y-intercept for each line. Using these values, state the number of solutions and give an explanation for your result.

a) ① $2x+3y=-6$
② $-4x+y=1$

slope-intercept form:
① $3y=-2x-6$, $y=-\frac{2}{3}x-2$
② $y=4x+1$

Line 1: slope: $-\frac{2}{3}$, y-int.: -2
Line 2: slope: 4, y-int.: 1

Number of solutions: 1
Explanation: Different slopes. They will intersect once.

b) ① $3x+y=-1$
② $-6x-2y=10$

Same slope different y-intercepts

slope-intercept form:
① $y=-3x-1$
② $-2y=6x+10$, $y=-3x-5$

Line 1: slope: -3, y-int.: -1
Line 2: slope: -3, y-int.: -5

Number of solutions: 0
Explanation: They are parallel. They will not intersect. No solutions.

c) ① $x+y=-2$
② $-3x-3y=6$

Same slopes Same y-intercepts

slope-intercept form:
① $y=-x-2$
② $-3y=3x+6$, $y=-x-2$

Line 1: slope: -1, y-int.: -2
Line 2: slope: -1, y-int.: -2

Number of solutions: infinite
Explanation: They are coincident. Every point intersects with every point.